Pacific Packet Radio Society Newsletter

Volume 2 Number 5 May 1986

Pacific Packet Radio Society (PPRS)
Post Office Box 51562
Palo Alto, CA 94303

Tuesday, May 6th Meeting
7:30 PM at the Ampex Cafeteria, 411 Broadway, Redwood City

Host Mode Software

Frank Kibbish, WB6MRQ, will speak about his design of "host-mode" software for the WA8DED packet operating system. Frank's IBM PC program was used recently at the Primavera Bicycle Tour in Fremont to keep track of riders at four field checkpoints. Using the multiconnect feature of the DED firmware, four remote packet stations connected to a host computer on 220 MHz, and reported the times and positions of the 2082 participating riders. The host's database kept track of the positions of the participants in real time. Come hear Frank describe this interesting application of packet radio, and gain an insight into writing custom software for your own packet station. *Also...* the usual PPRS exchange of news and views of the Bay Area packet scene and the opportunity to meet and talk with the operators you only know via your keyboard.

AJ6T>PPRS:

FCC Autocontrol Action and ARRL STA Request

The FCC has ruled favorably on the ARRL Petition for Extraordinary Relief which requested that the Commission "waive, suspend, or hold in abeyance the prohibition of third-party message traffic transmitted by amateur stations while under automatic control." This action temporarily rescinds part of the Report and Order on PR Docket 85-105 while the FCC analyzes the 19 Petitions for Reconsideration which were submitted. A final decision on the automatic control issue is not expected for at least several months, but in the meantime amateurs using AX.25 above 50 MHz are allowed to continue to operate just as we have in the past. However, no automatic operation waiver was made for operation on the HF bands. This means that HF BBS and Gateways are illegal. The ARRL also submitted a Partial Opposition to Petitions for Reconsideration which refuted the arguments made in support of automatic HF privileges (specifically addressing reconsideration petitions of PPRS members NI6A, WD6CMU and AJ6T, among others). In this document, the ARRL stated "the League is not necessarily opposed to automatic control of digital HF communications, but believes that authorization of the same while operating standards are still evolving would be premature. As such, it is opposed to blanket authorization for automatic control of digital communications on HF frequencies." The League is mainly concerned about harmful interference to other stations. However, "the League also notes that there is an unfilled need in the packet radio community to permit the automatic forwarding of messages across paths not presently spanned by VHF/UHF stations," and concludes that "to facilitate the development of packet networks, while at the same time providing a means to develop technical answers to questions such as those listed above, the League plans to coordinate a small group of licensees seeking special temporary authority to operate packet stations under automatic control on specified spot frequencies (one frequency per band) at various locations around the country.

Experience gained by such operation would permit the amateur community to determine which kinds of HF automatic control operations should be permitted, if any, and which should not." If the FCC acts favorably on the ARRL STA request, bulletin boards and networking will return to the HF airwaves. Let's hope that the experience proves to be a positive one, and that HF automatic privileges will become a permanent part of the amateur landscape.

WB9LOZ>PPRS:

Packet Radio Digipeater and Mailbox Maps

In this issue of the *PPRS Newsletter* you'll find copies of Digipeater and Mailbox maps for 145.01 through 145.09 MHz., drawn up by Larry Kenney, WB9LOZ.

He initially drew the maps for his own use, making it easy to determine the best path from his QTH in San Francisco to other locations. When other packet operators heard about the maps they asked for copies, then the San Francisco Radio Club made copies for distribution at its computer fair in January. Updated copies were distributed again in March at the club's annual auction.

Larry has again updated the maps (as of April 14th) and the latest version is what you'll find in this issue. If you find errors on the maps, please make note of them and pass them on to Larry via the W6CUS-1 or N6IIU-1 mailboxes. He wants to keep the maps as accurate as possible, so will need your help in passing on the latest changes. As noted on the maps, he uses the "Pathfinder", edited by Rick, WA6NHC, as well as information gained from his own on-the-air operation. Your input will be greatly appreciated.

N6IA>PPRS:

DOCTOR PAKRATT

AEA PK-64 Pakratt Questions and Answers

by Steve Stuart, N6IA, Senior Design Engineer, AEA
P.O. Box 61256, Sunnyvale, CA 94088

WHEN I'M MONITORING, SOME OF THE PACKETS I HEAR SHOW UP ON THE SCREEN, BUT OTHER PACKETS DON'T. WHY IS THIS?

There are several levels of monitoring in the PK-64. The default values are set to allow only partial monitoring, but here's how to crank it all the way up:

First, let's look at MONRPT (Monitor Repeaters). Part of a monitored QSO might look like this with MONRPT OFF:

```
WA2DFI>N6IA:
What's new?
```

With MONRPT ON, we can see the digipeater path that this packet took:

```
WA2DFI>WD6CMU-1*>K6LLK>N6IA:
What's new?
```

The * means that this packet was heard being digipeated by WD6CMU-1.

Now, let's look at the MONITOR value itself. In the PK-64, MONITOR is a number from 0 to 6, rather than ON/OFF as in TAPR TNCs. The higher the number, the more types of packets you can monitor.

0 No packets monitored.

1 Only UI frames. These might be BEACONs, CQs, or round table QSOs using UNPROTO.

2 UI and I-frames. Above plus normal connected QSOs.

3 Above plus SABM <C> (connect) and DISC <D> (disconnect).

4 Above plus UA and DM, which are acknowledgements to connect and disconnect frames.

5 Above plus RR, RNR, and REJ frames, which are acknowledgements to I-frames, plus FRMR frames (real bad news, rare).

6 Above plus some hard-core protocol spec stuff appearing in the Packet status panel: the link state 1-16, and the states of the internal timers T1, T2, and T3.

The ROM default is MONITOR 2. Some of the MONITOR levels correspond to similar settings in other TNCs:

PK-64	PK-80, TAPR TNC-2			WA8DED
MONITOR	MON..	MALL..	MCOM	M
0	OFF	x	x	N
1	ON	OFF	OFF	U
2	ON	ON	OFF	IU
3				
4	ON	ON	ON	
5				IUS
6				

Stations with their AX25L2V2 parameter OFF can be recognized by the angle brackets around the packet type:

```
N6IA>W6CUS-1 <C>
```

With AX25L2V2 ON, the brackets are square:

```
N6IA>W6CUS-1 [C,P]
```

The designations P and F stand for the Poll/Final bit and are of interest to protocol enthusiasts:

```
N6IA>W6CUS-1 <C,P>
W6CUS-1>N6IA <UA,F>
```

The numbers contained in I-frames are the next expected sequence number to be received and this frame's transmitted sequence number respectively:

```
N6IA>WA2DFI <I;2,3>:  You bet.
```

The number in RR, REJ, and RNR frames is the next expected sequence number to be received:

```
WA2DFI>N6IA <RR;4>
```

Now, suppose we want to show only packets from certain stations. The two lists MFROM (Monitor From) and MTO (Monitor To) and the parameter MONREJ (Monitor Reject) are used for selective monitoring. The normal state for monitoring everything is:

```
MONREJ OFF; MFROM ALL; MTO NONE.
```

To monitor only packets from the W6CUS-1 mailbox, set up these:

```
MONREJ OFF; MFROM W6CUS-1; MTO NONE.
```

To monitor both sides of any QSO involving W6CUS-1:

```
MONREJ OFF; MFROM W6CUS-1; MTO W6CUS-1.
```

To ignore beacons and CQs:

```
MONREJ ON; MFROM NONE; MTO BEACON,CQ.
```

Finally, the PK-64 MONCON ON/OFF command does the same thing as the TAPR MCON and WA8DED M C commands: it permits monitoring while you are connected.

MONITOR, MONRPT, MONREJ, and MONCON are all changed in the first parameter screen. In Packet mode, press f5 to get to this screen, change the parameters, then press f5 to see the second parameter screen, and f5 again to return to the Packet screen.

MFROM and MTO are changed on the Packet screen while you are in Command (CMD) mode. Check the parameter values in the second parameter screen (f5, f5).

Once you have cranked MONITOR all the way up, you may notice slight differences in protocol from station to station. Each TNC has its own quirks, and sometimes you can tell which TNC a station is using before you connect to him. As of March 1986, here a re some idiosyncracies I've observed:

TAPR TNC-1 (v 3.0): REJ immediately followed by RR frame.

```
WA2DFI>N6IA <I;0,1>:  Hi.
N6IA>WA2DFI <RJ;0>
N6IA>WA2DFI <RR;0>
```

TAPR TNC-2: UA and DM always have Final bit set.

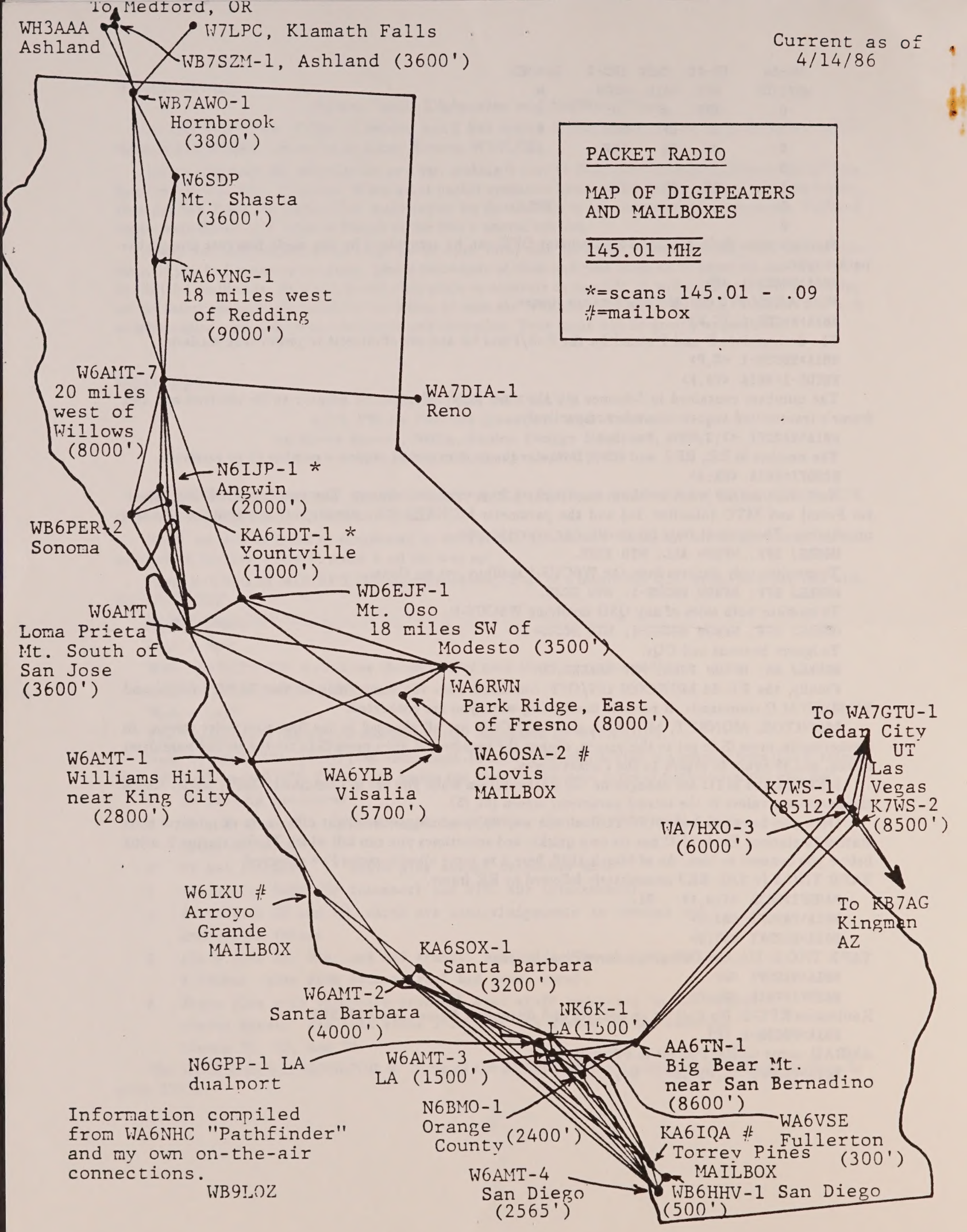
```
N6IA>WA2DFI <C>
WA2DFI>N6IA <UA,F>
```

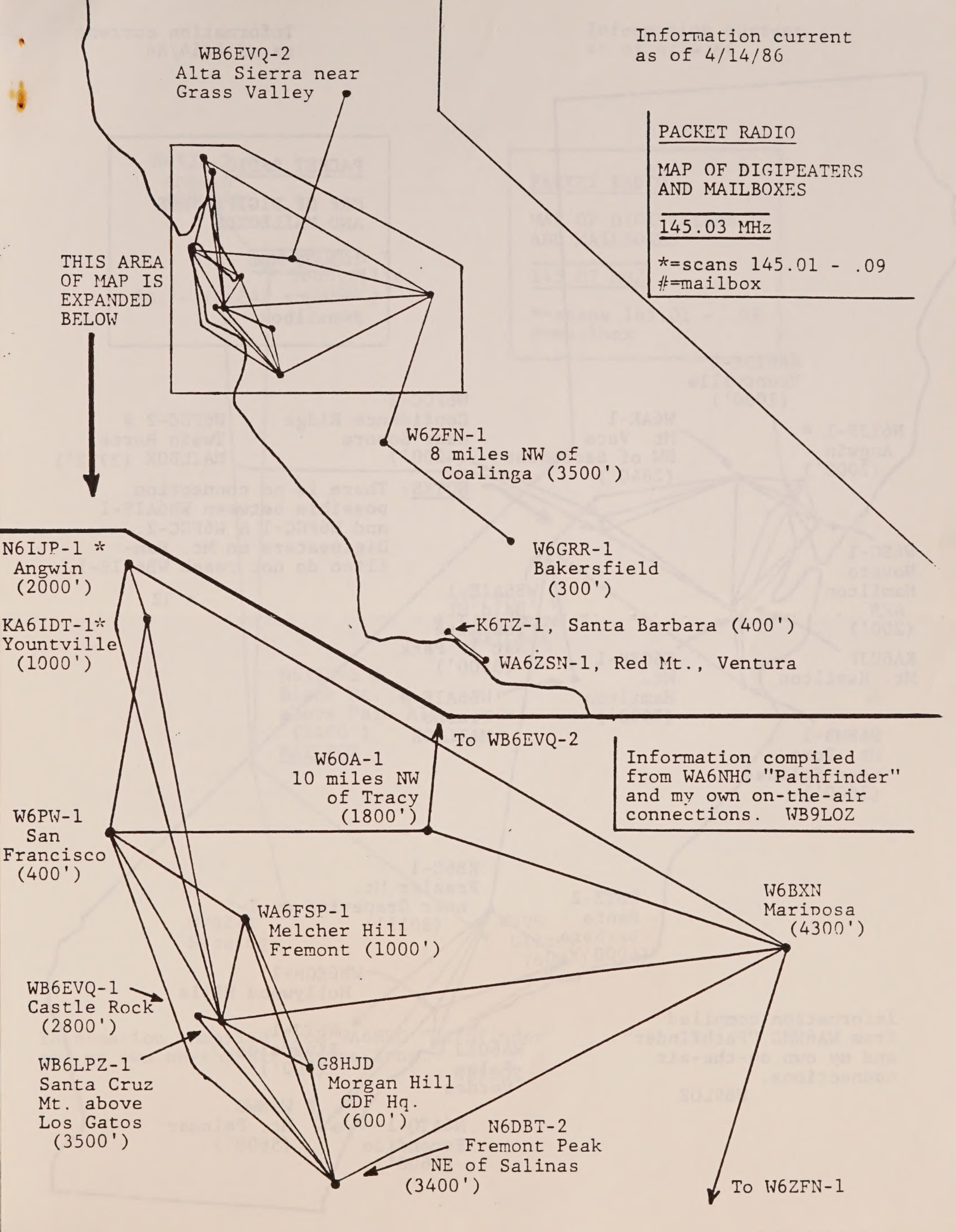
Kantronics KPC-2: No Poll bit on connect and disconnect frames in AX25L2V2.

```
N6IA>W6CUS-1 [C]
```

AMRAD, some GLBs: Poll bit in I-frames.

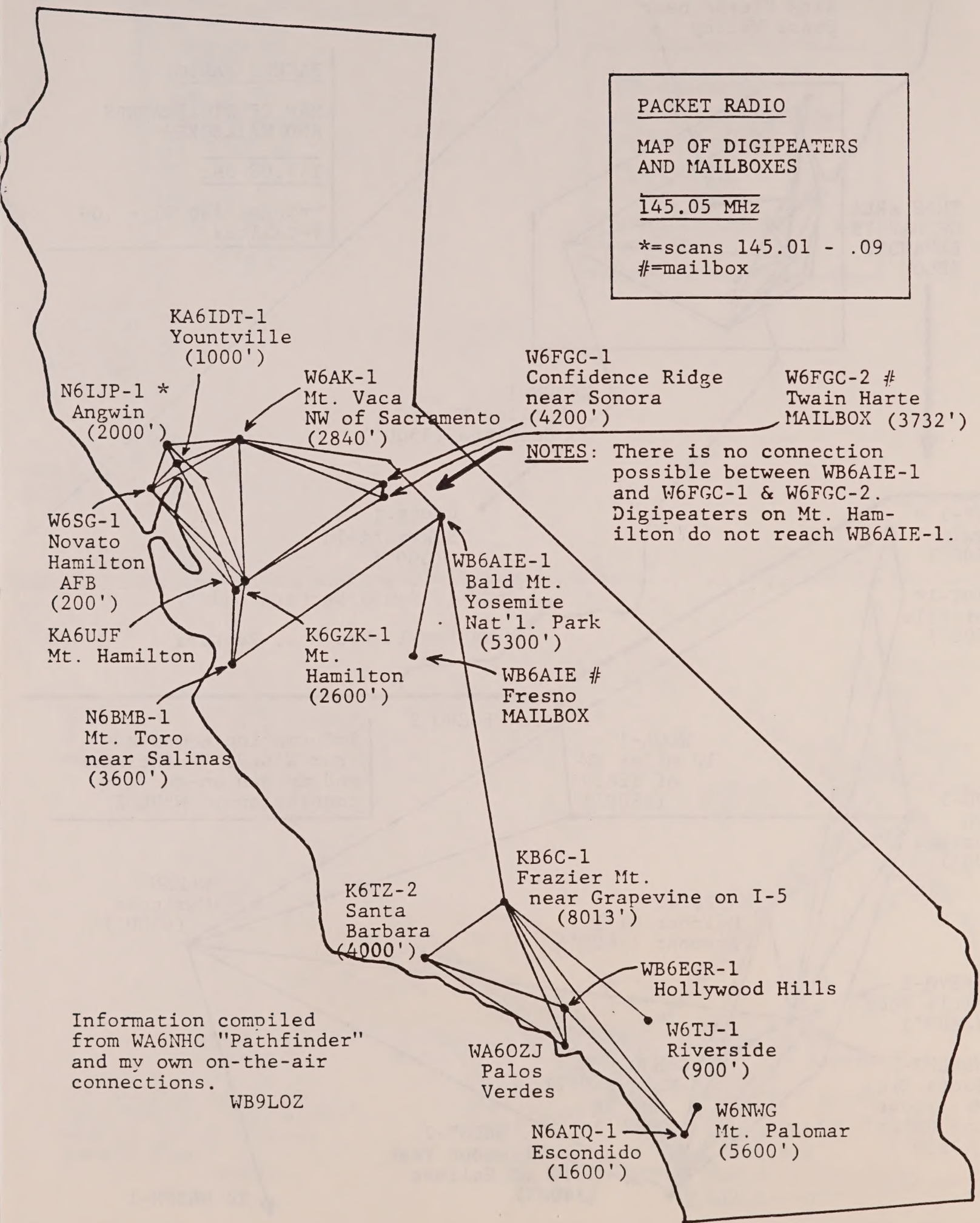
```
N6IA>WA2DFI <I,P;0,1>:  Hey.
```


To Medford, OR
WH3AAA
Ashland
W7LPC, Klamath Falls
WB7SZM-1, Ashland (3600')
Current as of
4/14/86
WB7AWO-1
Hornbrook
(3800')
W6SDP
Mt. Shasta
(3600')
WA6YNG-1
18 miles west
of Redding
(9000')
PACKET RADIO
MAP OF DIGIPEATERS
AND MAILBOXES
145.01 MHz
*=scans 145.01 - .09
#=mailbox
W6AMT-7
20 miles
west of
Willows
(8000')
WA7DIA-1
Reno
N6IJP-1 *
Angwin
(2000')
WB6PER-2
Sonoma
KA6IDT-1 *
Yountville
(1000')
WD6EJF-1
Mt. Oso
18 miles SW of
Modesto (3500')
W6AMT
Loma Prieta
Mt. South of
San Jose
(3600')
WA6RWN
Park Ridge, East
of Fresno (8000')
To WA7GTU-1
Cedar City
UT
Las
Vegas
K7WS-1
(8512')
K7WS-2
(8500')
WA7HXO-3
(6000')
W6AMT-1
Williams Hill
near King City
(2800')
WA6YLB
Visalia
(5700')
WA6OSA-2 #
Clovis
MAILBOX
To KB7AG
Kingman
AZ
W6IXU #
Arroyo
Grande
MAILBOX
KA6SOX-1
Santa Barbara
(3200')
W6AMT-2
Santa Barbara
(4000')
NK6K-1
LA(1500')
AA6TN-1
Big Bear Mt.
near San Bernadino
(8600')
N6GPP-1 LA
dualport
W6AMT-3
LA (1500')
N6BMO-1
Orange
County (2400')
WA6VSE
Fullerton
(300')
KA6IQA #
Torrey Pines
MAILBOX
W6AMT-4
San Diego
(2565')
WB6HHV-1 San Diego
(500')
Information compiled
from WA6NHC "Pathfinder"
and my own on-the-air
connections.
WB9LOZ


Information current as of 4/14/86
PACKET RADIO
MAP OF DIGIPEATERS AND MAILBOXES
145.03 MHz
*=scans 145.01 - .09
#=mailbox
WB6EVQ-2 Alta Sierra near Grass Valley
THIS AREA OF MAP IS EXPANDED BELOW
W6ZFN-1 8 miles NW of Coalinga (3500')
W6GRR-1 Bakersfield (300')
N6IJP-1 * Angwin (2000')
KA6IDT-1* Yountville (1000')
K6TZ-1, Santa Barbara (400')
WA6ZSN-1, Red Mt., Ventura
To WB6EVQ-2
W6OA-1 10 miles NW of Tracy (1800')
Information compiled from WA6NHC "Pathfinder" and my own on-the-air connections. WB9LOZ
W6PW-1 San Francisco (400')
W6BXN Mariposa (4300')
WA6FSP-1 Melcher Hill Fremont (1000')
WB6EVQ-1 Castle Rock (2800')
WB6LPZ-1 Santa Cruz Mt. above Los Gatos (3500')
G8HJD Morgan Hill CDF Hq. (600')
N6DBT-2 Fremont Peak NE of Salinas (3400')
To W6ZFN-1

To. Medford, OR

Information current
as of 4/14/86



Information compiled
from WA6NHC "Pathfinder"
and my own on-the-air
connections.

WB9LOZ

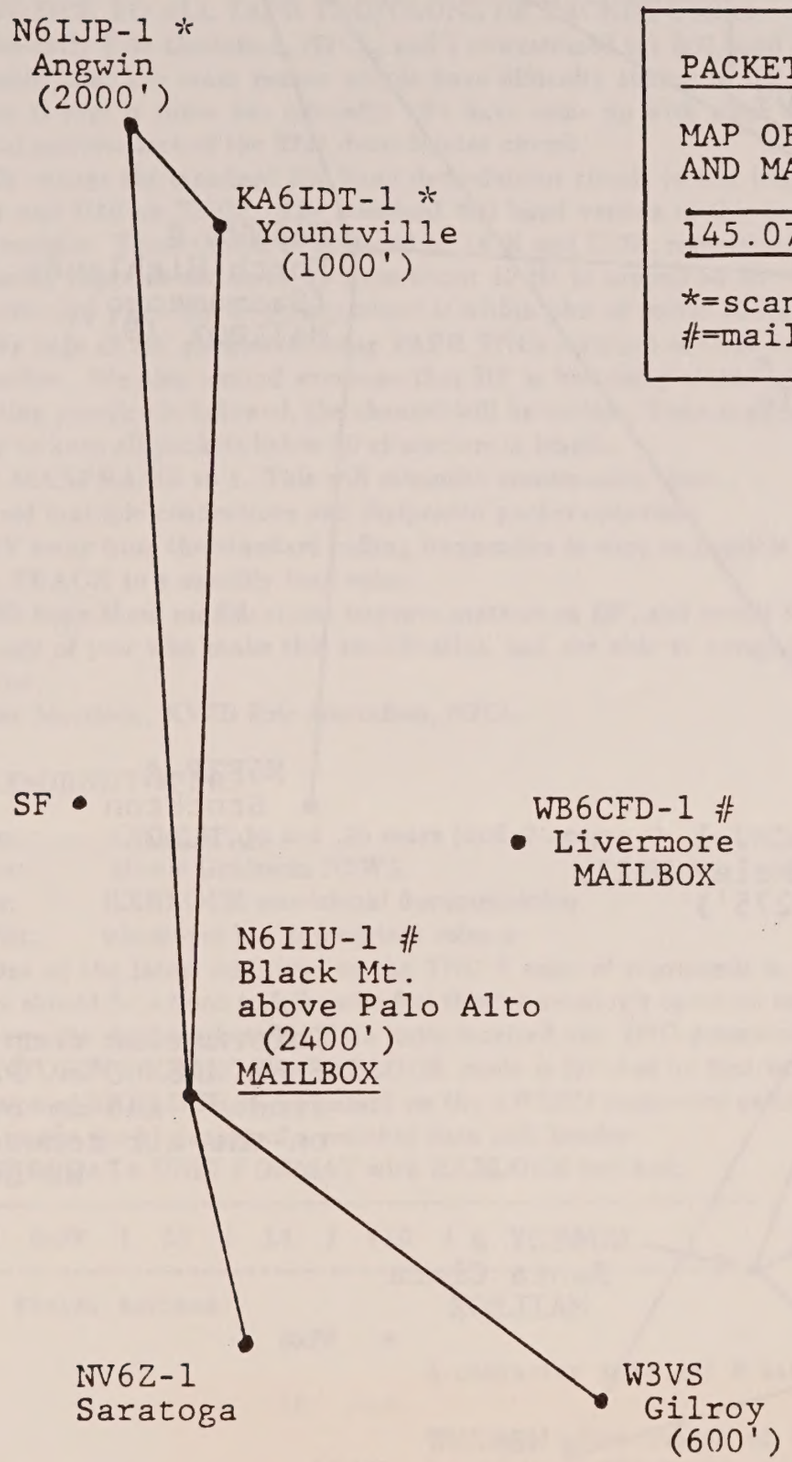
Information current
as of 4/14/86

PACKET RADIO

MAP OF DIGIPEATERS
AND MAILBOXES

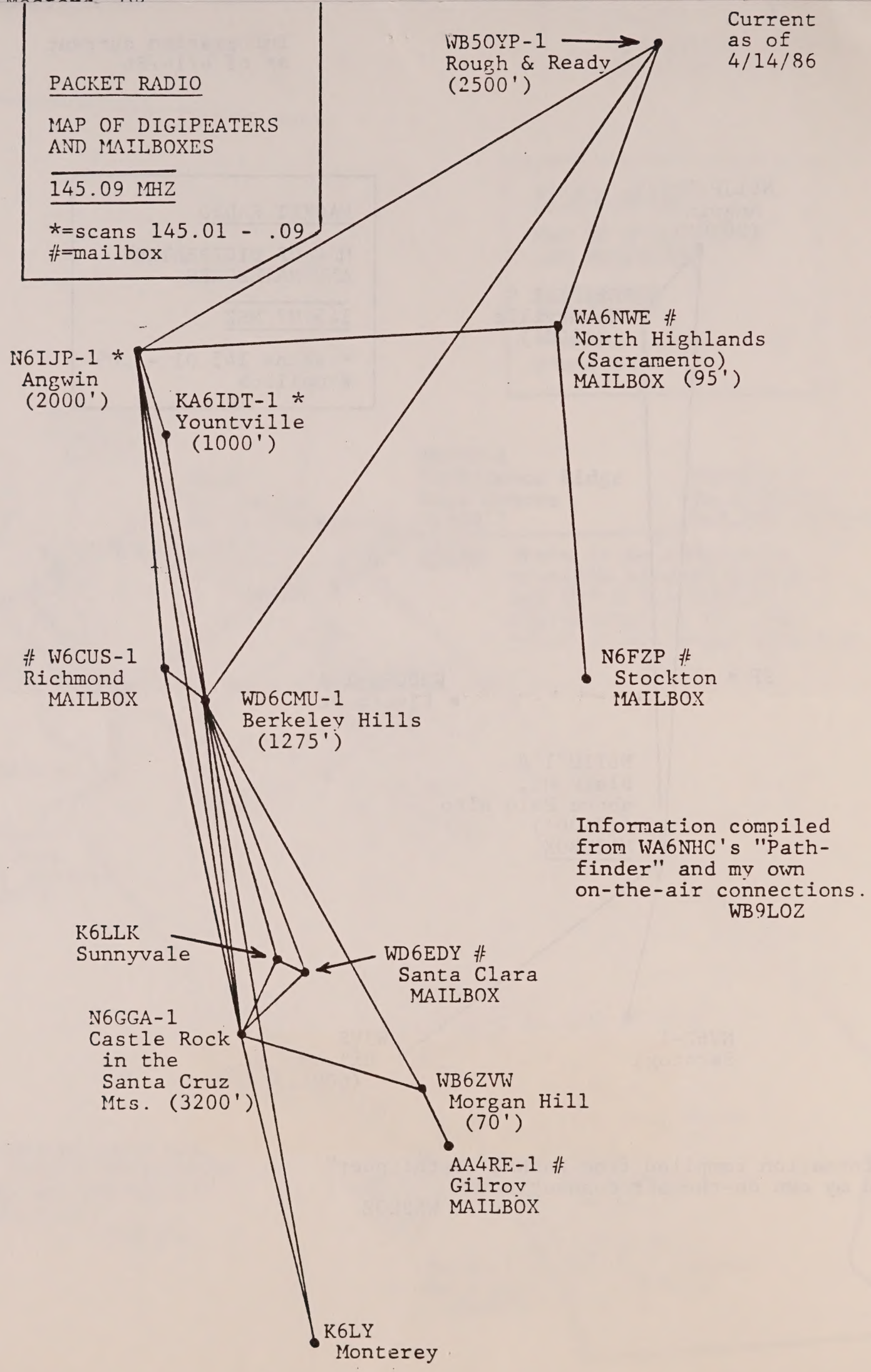
145.07 MHZ

*=scans 145.01 - .09
#=mailbox



Information compiled from WA6NHC "Pathfinder"
and my own on-the-air connections.

WB9LOZ


PACKET RADIO
MAP OF DIGIPEATERS
AND MAILBOXES
145.09 MHZ
*=scans 145.01 - .09
#=mailbox
Current
as of
4/14/86
WB5OYP-1
Rough & Ready
(2500')
WA6NWE #
North Highlands
(Sacramento)
MAILBOX (95')
N6IJP-1 *
Angwin
(2000')
KA6IDT-1 *
Yountville
(1000')
W6CUS-1
Richmond
MAILBOX
WD6CMU-1
Berkeley Hills
(1275')
N6FZP #
Stockton
MAILBOX
Information compiled
from WA6NHC's "Path-
finder" and my own
on-the-air connections.
WB9LOZ
K6LLK
Sunnyvale
WD6EDY #
Santa Clara
MAILBOX
N6GGA-1
Castle Rock
in the
Santa Cruz
Mts. (3200')
WB6ZVW
Morgan Hill
(70')
AA4RE-1 #
Gilroy
MAILBOX
K6LY
Monterey

KV7B>DRNET*>PPRS

M 4287 Dan Morrison (KV7B,2986) 4/17/86 12:17 AM L:41
KEYS:/IMPROVE YOUR 300 BAUD HF MODEM OPERATION/
NOTICE TO ALL TAPR TNC/CLONE HF PACKET USERS

Recently Eric Gustafson, N7CL, and I re-examined the 300 baud HF modem demodulator circuit and concluded that the main reason people have difficulty tuning in HF packet with the standard 300 baud modem is that it tunes too critically. We have come up with what we think should be very close to the optimal performance of the 2211 demodulator circuit.

To change the standard 300 baud demodulator circuit to this improved version, locate header U34 on TNC1 and U19 on TNC2. The standard 300 baud version of this header contains a 226K resistor and a 510K resistor. These should be replaced by 180K and 750K, respectively. The result of these changes is that the tuning range should open up from about 10 Hz to around 50 Hz. Thus, you should experience reliable demodulation when the frequency tuned is within plus or minus 20 Hz or so of the true signal frequency.

We urge all HF packeteers using TAPR TNCs (original or clone boards) to make these changes as soon as possible. We also remind everyone that HF is becoming alarmingly crowded, and that unless sensible operating practice is followed, the channel will be useless. Some suggestions concerning HF operation are:

1. Try to keep all packets below 80 characters in length.
2. Set MAXFRAME to 1. This will minimize transmission time.
3. Avoid multiple connections and digipeated packet operation.
4. QSY away from the standard calling frequencies as soon as possible.
5. Set FRACK to a sensibly long value.

We hope these modifications improve matters on HF, and would VERY GREATLY appreciate hearing from any of you who make this modification and are able to compare the new behavior to the previous behavior.

73, Dan Morrison, KV7B Eric Gustafson, N7CL

N2WX>DRNET*>PPRS

to: TNC 2 1.1.2a and .2b users (and .3 ..*ed*)
fm: Howie Goldstein N2WX
re: RXBLOCK provisional documentation
dist: whomever has appropriate release

One of the latest additions to the TNC 2 suite of commands is called RXBLOCK. The RXBLOCK feature should be a boon to folks who feel they've seemingly spent an entire lifetime installing brains in their drivers to discriminate between data units received and TNC-generated messages.

INVOKING RXBLOCK: RXBLOCK mode is invoked by first turning the parameter "ON". Correct operation of RXBLOCK is dependant on the AWLEN parameter getting set to 8 (bits) since the character 0xFF marks the beginning of a recieved data unit header.

NEW DATA UNIT FORMAT with RXBLOCK invoked:

```
-------------------------------------------------
| 0xFF | L0 | L1 | PID |       data            |
-------------------------------------------------
```

```
Fields defined:

                0xFF ::=
                        A character with all 8 bits set
                L0   ::=
                        The high order length of the data,
                        length, and PID fields logically ORed
                        with the value 0xF0
                L1   ::=
                        The low order length of the data, length,
                        and PID fields
                PID  ::=
```

The Protocol Identifier byte received
for the following data field

data ::=

[Optional], variable length data

NOTES: Suggest that parameters like AUTOLF, MFILTER etc. be set OFF in order to prevent uncertanties in the size of the data field.

I have not played much with this feature and appreciate all comments and observations on any of it's characteristics.

Howie

WB9FLW>DRNET*>PPRS

M 29931 Pete Eaton (WB9FLW,2970) 4/ 2/86 9:00 PM L:14

KEYS:/HEATH HD 4040 PRICE REDUCTION/

Just saw the new Heath Catalog, the HD 4040 TNC kit has been reduced to $199.95 and includes the Status indicator box and flat filter kit as well!

Also the description includes info on the WA8DED code for AX.25 Ver 2 capability.

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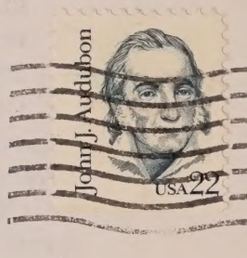
SAN JOSE PM APR 1 3 1986 CALIF.



First Class

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